

GAS LOAD SUMMARY	
LOAD	CONSUMPTION (CFH)
(E)RTU-1.1: ROOF TOP UNIT	125
(E)RTU-1.2: ROOF TOP UNIT	125
(E)RTU-1.3: ROOF TOP UNIT	113
(E)RTU-1.4: ROOF TOP UNIT	75
(E)RTU-1.5: ROOF TOP UNIT	113
(E)RTU-1.6: ROOF TOP UNIT	113
(E)RTU-1.7: ROOF TOP UNIT	113
(E)RTU-1.8: ROOF TOP UNIT	113
(E)RTU-1.9: ROOF TOP UNIT	125
(E)RTU-1.10: ROOF TOP UNIT	125
(E)RTU-1.11: ROOF TOP UNIT	125
(E)RTU-1.12: ROOF TOP UNIT	125
(E)RTU-1.13: ROOF TOP UNIT	150
(E)RTU-1.14: ROOF TOP UNIT	125
(E)RTU-1.15: ROOF TOP UNIT	125
(E)RTU-1.16: ROOF TOP UNIT	125
(E)RTU-1.17: ROOF TOP UNIT	125
(E)RTU-1.18: ROOF TOP UNIT	75
(E)RTU-1.19: ROOF TOP UNIT	75
(E)RTU-1.20: ROOF TOP UNIT	125
(E)RTU-1.21: ROOF TOP UNIT	125
EXISTING TOTAL	2,440
WH: WATER HEATER	120
RTU-LP22: ROOF TOP UNIT	120
RTU-LP23: ROOF TOP UNIT	150
MAU-1: MAKEUP AIR UNIT	198
MAU-1: MAKEUP AIR UNIT	101
ITEM #10: RANGE	286
ITEM #11: CONVECTION OVEN	54
ITEM #12: CONVECTION STEAMER	60
ITEM #14: GRIDDLE	112
ITEM #16: FRYER	120
ITEM #18: FRYER	120
ADDED SUBTOTAL	1,589
NEW TOTAL	4,029

EXISTING LOADS

ADDED NEW LOADS

NOTES:
 FARTHEST POINT OF DELIVERY FROM GAS METER TO MOST REMOTE FIXTURE = ±100 FT.
 DELIVERY PRESSURE AT GAS METER IS 5 PSI
 FUEL GAS CODE TABLE FOR ABOVE GRADE 5 PSI PIPING: IFGC 2012 - TABLE 402.4(5) SCHEDULE 40 METALLIC PIPE, 5 PSI INLET PRESSURE, 3.5 PSI PRESSURE DROP.
 FUEL GAS CODE TABLE FOR ABOVE GRADE LOW PRESSURE PIPING: IFGC 2012 - TABLE 402.4(2) SCHEDULE 40 METALLIC PIPE, 0.5 PSI INLET PRESSURE, 0.5" W.C. PRESSURE DROP.

PLUMBING MATERIALS AND NOTES	
DOMESTIC WATER PIPING:	
1.	DOMESTIC WATER PIPING AND JOINTS BELOW GRADE: PROVIDE TYPE "K" SOFT ANNEALED SEAMLESS COPPER TUBING (ASTM B 88) WITH NO JOINTS FOR PIPING 2 1/2" AND SMALLER. PROVIDE BUTTLE IRON PIPE AND FITTINGS (AWWA C151, AWWA C110) WITH RUBBER GASKET JOINTS AND RODS (AWWA C111) PIPING 3" AND LARGER.
2.	DOMESTIC WATER PIPING AND JOINTS ABOVE GRADE: PROVIDE TYPE "L" HARD DRAWN SEAMLESS COPPER TUBING (ASTM B 88) AND CAST COPPER ALLOY FITTINGS (ASME B16.18). JOINTS 2" AND SMALLER SHALL BE LEAD FREE 95-5 TIN/SILVER SOLDER JOINTS (ASTM B 32). JOINTS 2 1/2" AND LARGER SHALL BE BOND SILVER/PHOSPHORUS/COPPER BRAZED JOINTS (AWS A5.8) OR PROVIDE COPPER PIPE AND FITTINGS AS SPECIFIED ABOVE EXCEPT WITH GROOVED ENDS (ASTM B 88, ASME B16.18) AND JOINTS UTILIZING GROOVED MECHANICAL COUPLINGS MEETING (ASTM F1476).
3.	STERILIZE THE DOMESTIC WATER SYSTEM IN ACCORDANCE WITH THE AMERICAN WATER WORKS ASSOCIATION'S SPECIFICATION AND LOCAL HEALTH DEPARTMENT REGULATIONS.
4.	INSULATE DOMESTIC WATER PIPING ABOVE GRADE (EXCEPT EXPOSED CONNECTIONS TO PLUMBING FIXTURES) WITH GLASS FIBER INSULATION HAVING A VAPOR BARRIER AND JACKET. PIPE INSULATION SHALL HAVE A CONDUCTIVITY NOT EXCEEDING 0.27 BTU/H X 50 FT. FOLLOW SCHEDULE BELOW: SERVICE TYPE: PIPE SIZES INSULATION THICKNESS DOMESTIC HOT WATER & CIRCULATION 1/2" - 1 1/4" 1 1/2" DOMESTIC HOT WATER & CIRCULATION 1 1/2" - 4" 2" DOMESTIC COLD WATER 1/2" - 1 1/4" 1" DOMESTIC COLD WATER 1 1/2" - 4" 1"
5.	DOMESTIC WATER PIPING INSULATION, JACKETS, COVERINGS, SEALERS, MASTICS AND ADHESIVES ARE REQUIRED TO MEET A FLAME-SPREAD RATING OF 25 OR LESS AND A SMOKE-DEVELOPED RATING OF 50 OR LESS, AS TESTED BY ASTM E84 (NFPA 255) METHOD AND SHALL BE PLENUM RATED. PROVIDE PVC JACKET FOR EXPOSED PIPING IN MECHANICAL ROOMS.
6.	PROVIDE TWO-PIECE, BRONZE OR BRASS BODY, FULL PORT, 800 PSI WOG, BALL TYPE SHUT-OFF VALVES WITH BLOW-OUT PROOF STEMS AND ADJUSTABLE PACKING GLANDS. VALVES SHALL BE LEAD FREE PER NSF 61, ANNEK G REQUIREMENTS. INSTALL VALVES IN A LOCATION THAT PERMITS ACCESS FOR SERVICE WITHOUT DAMAGE TO THE BUILDING OR FINISHED MATERIALS.
7.	PROTECT COPPER PIPING AGAINST CONTACT WITH DISSIMILAR METALS. ALL HANGERS, SUPPORTS, ANCHORS AND CLIPS SHALL BE COPPER OR COPPER PLATED. WHERE COPPER PIPING IS CARRIED ON TRAPEZE HANGERS WITH OTHER PIPING, PROVIDE A PERMANENT ELECTROLYTIC ISOLATION MATERIAL TO PREVENT CONTACT WITH DISSIMILAR OTHER METALS.
8.	PROTECT COPPER PIPING AGAINST CONTACT WITH ALL MASONRY. WHERE COPPER IS SLEAVED THROUGH MASONRY, PROVIDE COPPER OR BRASS SLEEVES. WHERE COPPER MUST BE CONCEALED IN OR AGAINST MASONRY PARTITIONS, PROVIDE A HEAVY COATING OF ASPHALTIC ENAMEL ON THE COPPER PIPING AND 1/8" ASPHALT SATURATED FELT BETWEEN THE PIPING AND THE MASONRY PARTITION.
9.	DOMESTIC WATER PIPING SHALL BE SLOPED FOR DRAINAGE WITH DRAIN VALVES INSTALLED AT LOW POINTS.
10.	BALANCE THE DOMESTIC HOT WATER CIRCULATION SYSTEM TO THE PERFORMANCE SPECIFICATIONS INDICATED ON THE PLANS AND PROVIDE THE ENGINEER WITH THREE COPIES OF A COMPLETE TEST AND BALANCE REPORT. THE REPORT IS TO BE ISSUED A MINIMUM OF TWO WEEKS PRIOR TO PROJECT COMPLETION. THE TEST AND BALANCE REPORT WILL BE SUBJECT TO REVIEW AND APPROVAL BY THE ENGINEER. ANY ADDITIONAL TESTING, ADJUSTING AND BALANCING REQUIRED (AT ENGINEER'S REQUEST) AFTER REVIEW OF THE INITIAL REPORT SHALL BE PROVIDED AT NO ADDITIONAL COST. TEST AND BALANCE REPORT TO BE COMPLETED BY AN INDEPENDENT, CERTIFIED TEST AND BALANCE CONTRACTOR.
11.	DOMESTIC WATER SUPPLY PIPING SHALL BE TESTED AND PROVED WATER TIGHT UNDER A WATER PRESSURE OF NO LESS THAN THE WORKING PRESSURE OF THE SYSTEM, OR AN AIR TEST OF NO LESS THAN ONE-HUNDRED (100) PSI. PRESSURE SHALL BE HELD FOR AT LEAST FIFTEEN (15) MINUTES. WATER USED IN TESTING SHALL BE OBTAINED FROM A POTABLE SOURCE OF SUPPLY.
SANITARY WASTE / VENT AND STORM PIPING:	
1.	SANITARY WASTE AND STORM DRAIN PIPING BELOW GRADE: PROVIDE SERVICE WEIGHT CAST IRON HUB AND SPOUT PIPE (ASTM A 74) WITH COMPRESSION JOINTS (CSPI HSN) AND NEOPRENE GASKETS (ASTM C 244) OR IN-DUPLEX PIPE AND FITTINGS (CSPI 301) WITH NEOPRENE GASKET/STAINLESS STEEL CLAMP JOINTS (CSPI 310).
2.	SANITARY WASTE/VENT AND STORM DRAIN PIPING ABOVE GRADE: PROVIDE SERVICE WEIGHT CAST IRON HUB PIPE AND FITTINGS (CSPI 301) WITH NEOPRENE GASKET AND STAINLESS STEEL CLAMP JOINTS (CSPI 310).
3.	SLOPE SANITARY WASTE AND STORM DRAIN PIPING AT 1/4" PER FOOT MINIMUM FOR PIPING 2 1/2" AND SMALLER AND 1/8" PER FOOT MINIMUM FOR PIPING 3" AND LARGER UNLESS NOTED OTHERWISE. SLOPE ALL KITCHEN WASTE PIPING AT 1/4" PER FOOT MINIMUM.
4.	PROVIDE CLEAN-OUTS AT THE BASE OF SANITARY WASTE STACKS AND STORM DRAIN RISERS AND EVERY TURN IN PIPING IN EXCESS OF 45° AND NO FURTHER THAN 100'-0" APART IN A LOCATION THAT PERMITS ACCESS FOR SERVICE WITHOUT DAMAGE TO THE BUILDING OR FINISHED MATERIALS.
5.	PROVIDE FLOOR CLEANOUTS WITH TOPS DESIGNED TO MATCH SPECIFIC FLOOR FINISHES SUCH AS CARPET, TILE, ETC. HARD CLEANOUTS SHALL BE PROVIDED IN AN 18"x18" CONCRETE PAD.
6.	WHERE WASTE PIPING IS EXPOSED IN REST ROOM AREAS, PROVIDE CHROME OR BRASS PIPING, REMOVABLE P-TRAPS, WATCHING STOPS AND ESCUTCHEOS FOR ALL TRAP VENTILATION.
7.	SANITARY WASTE AND VENT SYSTEMS SHALL BE TESTED AND PROVED WATER TIGHT UNDER A PRESSURE OF NO LESS THAN 10 FT. THIS PRESSURE SHALL BE HELD FOR A PERIOD OF NO LESS THAN 15 MINUTES.
8.	INSULATE MECHANICAL ROOM FLOOR DRAIN BODIES, P-TRAP AND HORIZONTAL SANITARY PIPING ABOVE GRADE WITH 1" THICK GLASS FIBER INSULATION WITH VAPOR BARRIER AND JACKET.
9.	INSULATE ROOF DRAIN BODIES AND HORIZONTAL SANITARY AND SECONDARY STORM DRAIN PIPING ABOVE GRADE WITH 1" THICK GLASS FIBER INSULATION WITH VAPOR BARRIER AND JACKET.
10.	PIPING INSULATION, JACKETS, COVERINGS, SEALERS, MASTICS AND ADHESIVES ARE REQUIRED TO MEET A FLAME-SPREAD RATING OF 25 OR LESS AND A SMOKE-DEVELOPED RATING OF 50 OR LESS, AS TESTED BY ASTM E84 (NFPA 255) METHOD.
NATURAL GAS PIPING:	
1.	NATURAL GAS PIPING AND FITTINGS ABOVE GRADE: SCHEDULE 40 BLACK STEEL PIPING, TYPE S, SEAMLESS, GRADE B (ASTM A 53) AND 150 PSI MALLEABLE BLACK IRON FITTINGS, GRADE 32510, ASTM B 16.18 FORGED STEEL WELDING TYPE FITTINGS (ASTM A234). PROVIDE THREADED JOINTS FOR PIPE 2" AND SMALLER. PROVIDE WELDED JOINTS (ASME B31.9) FOR PIPE 2 1/2" AND LARGER.
2.	SPACE GAS PIPING UNDER RODS 7"-0" ON CENTER MAXIMUM AND SPACE TRANSVERSE BRACING 24"-0" ON CENTER MINIMUM. TRANSVERSE BRACING FOR ONE SECTION MAY ACT AS LONGITUDINAL BRACING FOR THE NEXT SECTION. TRANSVERSE BRACING SHALL BE CONNECTED TO IT IF THE BRACING IS INSTALLED WITHIN 24" OF THE LOW CORNER. COORDINATE HANGER LOCATIONS WITH STRUCTURAL DRAWING DETAILS.
3.	PROVIDE A CERTIFIED SHUT-OFF VALVES MINIMUM 125 PSI RATED, NON-LUBRICATED PLUG TYPE WITH BRONZE BODY AND BRASS PLUG, STRAINERS AND REGULATORS (AS RECOMMENDED BY THE EQUIPMENT MANUFACTURER) FOR ALL EQUIPMENT CONNECTED TO THE NATURAL GAS SYSTEM.
4.	GAS PRESSURE REGULATORS SHALL COMPLY WITH ANSI Z21.80. REGULATORS SHALL BE CAST IRON OR DIE-CAST ALUMINUM CONSTRUCTION WITH INTERCHANGEABLE ZINC-PLATED STEEL SPRINGS, ZINC-PLATED STEEL DIAPHRAGM PLATE, NITRILE RUBBER SEAT DISC, INTERCHANGEABLE ALUMINUM O-RINGS, AND UNBRACKET-STABILIZED MINERAL FILLED NYLON SEAL PLUG. REGULATOR SHALL BE SINGLE-PORT SELF-CONTAINED WITH ORIFICE NO LARGER THAN REQUIRED AT MAXIMUM PRESSURE INLET AND NO PRESSURE SENSING PIPING EXTERNAL TO THE REGULATOR. PRESSURE REGULATOR SHALL MAINTAIN DISCHARGE PRESSURE SETTING DOWNSTREAM AND NOT EXCEED 150 PERCENT OF DESIGN DISCHARGE PRESSURE AT SHUTOFF. OVERPRESSURE PROTECTION DEVICE SHALL BE FACTORY MOUNTED ON REGULATOR. WHEN USING VENTLESS REGULATORS, MOUNT REGULATOR IN HORIZONTAL UPRIGHT POSITION. IF VENTED TYPE REGULATORS ARE USED, INSTALL VENT PIPING (FULL SIZE ORNED) FROM GAS PRESSURE REGULATORS TO OUTDOORS AND TERMINATE IN WEATHERPROOF HOOD.
5.	PAIN ALL GAS PIPING WITH 2 COATS OF YELLOW ENAMEL PAINT APPLIED WITH A BRUSH (2 MIL THICKNESS MINIMUM). STENCIL "GAS" ON PIPE AT 12'-0" CENTERS FOR ALL LOW PRESSURE PIPING (0.5 PSI). STENCIL "5-PSI GAS" ON PIPE AT 6'-0" CENTERS FOR 5 PSI GAS PIPING.
6.	GAS PIPING SHALL BE BONDED IN ACCORDANCE WITH 2018 NFPA SECTION 310, ELECTRICAL BONDING.

PLUMBING GENERAL NOTES	
GENERAL REQUIREMENTS:	
1.	PLUMBING WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE NORTH CAROLINA STATE PLUMBING CODE AND WITH THE REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION.
2.	SCOPE: PROVIDE ALL LABOR, MATERIAL AND EQUIPMENT REQUIRED FOR THE COMPLETION AND OPERATION OF ALL PLUMBING SYSTEMS IN ACCORDANCE WITH ALL APPLICABLE CODES.
3.	PERMITS: APPLY AND PAY FOR ALL NECESSARY PERMITS, FEES AND INSPECTIONS REQUIRED BY ANY PUBLIC AUTHORITY HAVING JURISDICTION. AGENCY CHARGES, FACILITIES CHARGES AND BOND PROPERTY ASSESSMENTS ARE NOT TO BE CONSIDERED TO BE A PART OF THIS CONTRACT.
4.	WARRANTY: PROVIDE A ONE YEAR WARRANTY, FROM THE DATE OF ACCEPTANCE OF WORK BY THE OWNER, FOR ALL PLUMBING MATERIALS AND EQUIPMENT.
5.	COORDINATE ALL PLUMBING PIPING LOCATIONS, ROUGH-IN LOCATIONS AND EQUIPMENT LOCATIONS WITH OTHER TRADES TO AVOID CONFLICTS AND INTERFERENCES. FINAL PIPING AND EQUIPMENT LOCATIONS SHALL BE A CODE COMPLIANT INSTALLATION FOR ALL TRADES.
6.	FIELD VERIFY PROPER OPERATION OF EXISTING SYSTEMS BEFORE STARTING CONSTRUCTION. NOTIFY THE ARCHITECT / ENGINEER OF RECORD OF ANY PROBLEMS OR DISCREPANCIES BETWEEN THE CONSTRUCTION DOCUMENTS AND EXISTING CONDITIONS AND/OR ANY POTENTIAL PROBLEMS OBSERVED BEFORE CONTINUING WORK IN THE EFFECTED AREAS.
7.	WHERE DISCREPANCIES ARE FOUND IN THE DRAWINGS AND SPECIFICATIONS THE MORE STRINGENT SHALL APPLY. CONTACT ENGINEER FOR CLARIFICATION.
8.	ALL PIPING SHALL BE MANUFACTURED IN THE UNITED STATES OF AMERICA.
9.	ALL VALVES, BACKFLOW PREVENTERS, BOOSTER PUMPS, ETC. SERVING THE DOMESTIC WATER SYSTEM SHALL MEET LEAD FREE STANDARDS PER ANS/NFPA 372 AND NSF 61, ANNEK G.
10.	CUT WALLS, FLOORS AND CEILINGS AS REQUIRED FOR INSTALLATION OF PLUMBING WORK. ALL CUTTINGS SHALL BE HELD TO A MINIMUM. PATCH AND FINISH SURFACES TO MATCH ADJOINING SURFACES.
11.	PLUMBING PLANS SHALL NOT BE SCALED. REFERENCE THE ARCHITECTURAL PLANS FOR ALL LOCATIONS OF PLUMBING FIXTURES, WALLS, DOORS, WINDOWS, ETC.
12.	PLUMBING PIPING AND SPECIALTIES SHALL BE LOCATED CONCEALED IN WALLS, PARTITIONS OR ABOVE CEILINGS UNLESS NOTED OTHERWISE. PLUMBING PIPING IN EXPOSED AREAS SHALL BE RUN TIGHT TO UNDERSIDE OF STRUCTURE. PROVIDE ACCESS DOORS FOR CONCEALED SPECIALTIES.
13.	PLUMBING PIPING, VENTS, ETC. EXTENDING THROUGH EXTERIOR WALLS AND/OR THE ROOF SHALL BE FLASHED AND COUNTER FLASHED IN A WATERPROOF MANNER. COORDINATE FLASHING WITH THE GENERAL CONTRACTOR.
14.	DO NOT INSTALL PLUMBING PIPING IN AREAS SUBJECT TO FREEZING TEMPERATURES. INSTALL PLUMBING PIPING SHOWN IN EXTERIOR WALLS ON THE UNCONDITIONED SIDE OF THE WALL INSULATION.
15.	PROVIDE NON-CONDUCTING DIELECTRIC UNIONS WHENEVER CONNECTING DISSIMILAR METALS.
16.	ATTACH HANGERS TO STRUCTURE, HANGERS SHALL NOT ATTACH TO THE DECK.
17.	PROVIDE ACCESS DOORS FOR VALVES, WATER HAMMER ARRESTORS, TRAP PRIMERS, ETC. CONCEALED IN MASONRY WALLS, CIPBOARD WALLS AND/OR CEILINGS THAT WILL ALLOW MAINTENANCE ACCESS.
18.	PLUMBING SYSTEMS INCLUDE, BUT ARE NOT LIMITED TO: PLUMBING FIXTURES AND EQUIPMENT, FIRE STOPPING, SEISMIC BRACING, IDENTIFICATION, NATURAL GAS SYSTEM.
PLUMBING FIXTURES AND EQUIPMENT:	
1.	PROVIDE COMPLETE PLUMBING FIXTURES AND EQUIPMENT, INCLUDING SINKS, TUBS, VALVES, FAUCETS, DRAINS, TRAPS, TAIL PIECES, ESCUTCHEOS, ETC.
2.	PLUMBING FIXTURES AND EQUIPMENT SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS AND INSTALLATION INSTRUCTIONS.
3.	NO PRIVATE LABELED MATERIALS WILL BE ACCEPTED. EQUALS TO PRODUCTS SPECIFIED HEREIN.
4.	THE PLUMBING CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH SUBSTITUTIONS TO SPECIFIED PLUMBING FIXTURES AND EQUIPMENT. SUCH SUBSTITUTIONS ARE LIMITED TO PROVIDING MAINTENANCE ACCESS CLEARANCE, SINK, ELECTRIC REPAIRMENT OF OTHER SYSTEMS, COMPACT BUILDING ALTERNATIVES, AND ANY MODIFICATIONS TO ASSOCIATED MECHANICAL, ELECTRICAL OR PLUMBING SYSTEMS. ALL COSTS ASSOCIATED WITH SUBSTITUTIONS SHALL BE INCLUDED IN THE ORIGINAL BIDD.
PLUMBING DEMOLITION NOTES	
1.	THE PLUMBING CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING THE PROJECT TO VERIFY EXISTING CONDITIONS AND DETERMINE THE LEVEL OF DEMOLITION REQUIRED AND INCLUDE ALL NECESSARY PRICING IN THEIR BID. ANY DISCREPANCIES NOTED BETWEEN THE DOCUMENTS AND EXISTING CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO BIDDING.
2.	PLUMBING CONTRACTOR SHALL REMOVE EXISTING PLUMBING FIXTURES AND EQUIPMENT AS INDICATED, INCLUDING ASSOCIATED HOT WATER, COLD WATER, WASTE AND VENT PIPING, UNLESS NOTED OTHERWISE. SEE ARCHITECTURAL DEMOLITION PLAN FOR LOCATIONS.
3.	PLUMBING CONTRACTOR SHALL REMOVE UNUSED HW & CW BRANCH PIPING BACK TO WITHIN 12" OF THE MAIN IT CONNECTS, TERMINATE WITH SHUT-OFF VALVE AND CAP.
4.	PLUMBING CONTRACTOR SHALL TERMINATE UNUSED BRANCH WASTE PIPING WITH A CLEAN-OUT AT THE MOST REMOTE END OR ABANDONED AND CAPPED WITHIN 12" OF THE MAIN IT CONNECTS. (NO DEAD-ENDS ALLOWED)
5.	PLUMBING CONTRACTOR SHALL REMOVE UNUSED VENT BRANCH PIPING BACK TO WITHIN 12" OF THE MAIN IT CONNECTS THEIR CAP.
6.	PLUMBING CONTRACTOR SHALL VERIFY PROPER OPERATION OF ALL EXISTING EQUIPMENT PRIOR TO BEGINNING WORK. ANY PROBLEMS SHALL BE BROUGHT TO THE ATTENTION OF THE PROJECT ARCHITECT IMMEDIATELY.
7.	WITH THE REMOVAL OF EXISTING WALLS, SOME EXISTING WASTE, VENT, STORM DRAIN, OR DOMESTIC WATER PIPING MAY BE DISCOVERED. ANY EXISTING PIPING DISCOVERED THAT IS NOT SHOWN ON THE P-10 TO NEW WALLS, ANY EXISTING PIPING DISCOVERED THAT IS ABANDONED SHALL BE REMOVED.

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SEISMIC RESTRAINT NOTES	
1.	PROVIDE DESIGN AND INSTALLATION OF SEISMIC RESTRAINT ELEMENTS FOR THE PLUMBING SYSTEM(S) IN COMPLIANCE WITH ALL APPLICABLE REQUIREMENTS OF THE 2018 NORTH CAROLINA BUILDING CODE AND ASCE 7-10, CHAPTER 13. REFER TO THE APPENDIX B ON THE ARCHITECTURAL DRAWINGS FOR THE SITE'S SEISMIC DESIGN CATEGORY (B, C OR D).
2.	REFER TO THE LATEST EDITION OF THE "SEISMIC RESTRAINT MANUAL: GUIDELINES FOR MECHANICAL SYSTEMS" PUBLISHED BY SHAWKIN TO DETERMINE THE CORRECT RESTRAINTS FOR PIPING.
3.	PROVIDE CALCULATIONS AND PREPARE SHOP DRAWINGS FOR THE SPECIFIC METHODS OF SEISMIC RESTRAINT TO BE USED IN ACCORDANCE WITH ASCE 7-10, CHAPTER 13. REQUIRED RESTRAINT DEVICES, MATERIALS AND SUPPLEMENTARY FRAMING SHALL BE AN INTEGRAL PART OF THE DESIGN AND INCLUDED IN THE SHOP DRAWINGS. PROVIDE ISOLATORS, SEISMIC JOINTS, RESTRAINTS, ETC. AS NECESSARY TO COMPLY WITH ALL APPLICABLE REQUIREMENTS.
4.	CALCULATIONS SHALL BE PREPARED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NORTH CAROLINA WITH A MINIMUM 5 YEARS OF EXPERIENCE IN THE DESIGN AND SPECIFICATION OF SEISMIC RESTRAINT SYSTEMS.
5.	SUBMIT CALCULATIONS AND SHOP DRAWINGS TO THE ARCHITECT, ENGINEER, AND LOCAL AUTHORITY HAVING JURISDICTION FOR REVIEW AND APPROVAL.
6.	COPIES OF THE APPROVED RESTRAINT SYSTEM(S) INSTALLATION MANUAL SHALL BE ON THE JOBSITE PRIOR TO INSTALLATION.
7.	THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY REQUIRED SPECIAL INSPECTIONS AND ASSOCIATED DOCUMENTATION. THE CONTRACTOR SHALL PROVIDE VERIFICATION IN WRITING OF COMPLIANCE WITH THE APPROVED SHOP DRAWINGS.
8.	REVIEW AND APPROVAL OF THE SHOP DRAWINGS AND CALCULATIONS BY THE ARCHITECT/ENGINEER/ARCHITECT SHALL NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY TO COMPLY WITH SEISMIC OR OTHER REQUIREMENTS OF THE 2018 NORTH CAROLINA BUILDING CODE AND ASCE 7-10.

PLUMBING LEGEND			
EXISTING PIPING	NEW PIPING	ABBR.	DESCRIPTION
(-)-(-)	(-)-(-)	CW	COLD WATER PIPING
(-)-(-)	(-)-(-)	HW	HOT WATER PIPING
(-)-(-)	(-)-(-)	HWR	HOT WATER RETURN PIPING
(-)-(-)	(-)-(-)	W	SANITARY WASTE PIPING
(-)-(-)	(-)-(-)	V	SANITARY VENT PIPING
(-)-SD(-)	(-)-SD(-)	SD	STORM DRAIN PIPING - BEL. GRADE
(-)-SD(-)	(-)-SD(-)	SD	STORM DRAIN PIPING - ABV. CEILING
(-)-ESD(-)	(-)-ESD(-)	ESD	EMERGENCY STORM DRAIN PIPING
(-)-(-)	(-)-(-)	G	NATURAL GAS PIPING
(-)-GW(-)	(-)-GW(-)	GW	GREASE LADEN WASTE PIPING
(-)-(-)	(-)-(-)	D	DRAIN
(-)-X X X X X X X X	(-)-X X X X X X X X	-	EXISTING PIPING TO BE REMOVED
(-)-(-)	(-)-(-)	-	ELBOW DOWN
(-)-(-)	(-)-(-)	-	ELBOW UP
(-)-(-)	(-)-(-)	-	PIPE CONTINUES
(-)-(-)	(-)-(-)	-	PIPE CAP
(-)-(-)	(-)-(-)	-	BALL VALVE
(-)-(-)	(-)-(-)	CV	CHECK VALVE
(-)-(-)	(-)-(-)	BV	BALANCING VALVE / CHECK VALVE
(-)-(-)	(-)-(-)	-	GAS COCK
(-)-(-)	(-)-(-)	PRV	PRESSURE REDUCING/REGULATING VALVE
(-)-(-)	(-)-(-)	-	OLEFINOID VALVE
(-)-(-)	(-)-(-)	RPZ	REDUCED PRESSURE ZONE BACKFLOW PREVENTER
(-)-(-)	(-)-(-)	-	DIRECTION OF FLOW
(-)-(-)	(-)-(-)	-	PIPE REDUCER
(-)-(-)	(-)-(-)	CO	FLOOR CLEAN OUT
(-)-(-)	(-)-(-)	WCO	WALL CLEAN OUT
(-)-(-)	(-)-(-)	CO	END OF LINE CLEAN OUT
(-)-(-)	(-)-(-)	YCO	YARD CLEAN OUT
(-)-(-)	(-)-(-)	FD	FLOOR DRAIN
(-)-(-)	(-)-(-)	FS	FLOOR SINK
(-)-(-)	(-)-(-)	RD	ROOF DRAIN
(-)-(-)	(-)-(-)	HB	HOSE BIBB/WALL HYDRANT
(-)-(-)	(-)-(-)	SA	SHOCK ARRESTOR - SUFFIX INDICATES PSI SIZE
(-)-(-)	(-)-(-)	-	THERMOMETER
(-)-(-)	(-)-(-)	-	PRESSURE GAUGE
(-)-(-)	(-)-(-)	TP	TRAP PRIMER
(-)-(-)	(-)-(-)	CIE	CONNECT TO EXISTING
(-)-(-)	(-)-(-)	(-)	POINT OF DEMOLITION
ADDITIONAL ABBREVIATIONS			
ABV	ABOVE FINISHED FLOOR	IN	INDIRECT WASTE
AFF	ABOVE FINISHED GRADE	KW	KELWATT
AFG	ABOVE FINISHED GRADE	LAV	LAVATORY
BAS	BUILDING AUTOMATION SYSTEM	MBH	1000 BTUH
BEH	BELOW FINISHED FLOOR	MGF	MANUFACTURER
BTUH	BRITISH THERMAL UNIT / HOUR	MH	MOUNTING HEIGHT
CFH	CUBIC FEET PER HOUR	PH	PHASE
CFM	CUBIC FEET PER MINUTE	PSI	POUNDS PER SQUARE INCH
CONT	CONTINUATION	SF	SQUARE FEET
DFU	DRAINAGE FIXTURE UNIT (WASTE)	SFU	SUPPLY FIXTURE UNITS
DN	DOWN	TEMP	TEMPERATURE AND PRESSURE
E	EXISTING	TP	TEMPERED WATER
EL	EXISTING FLOOR ELEVATION	TV	TYPICAL
FE	FINISHED FLOOR ELEVATION	UR	URINAL
FN	FINISH	VB	VACUUM BREAKER
FM	FORCED MAIN	VAL	VALVE
FR	FROM	VTR	VENT THRU ROOF
FU	FIXTURE UNITS	WC	WATER COLUMN
GPC	GALLONS PER CYCLE (METERING)	EC	ELECTRICAL CONTRACTOR
GPF	GALLONS PER FLUSH	FSEC	FOOD SERVICE EQUIP. CONTRACTOR
GPM	GALLONS PER MINUTE	GC	GENERAL CONTRACTOR
HP	HORSE POWER	MC	MECHANICAL CONTRACTOR
INV	INVERT ELEVATION	PL	PLUMBING CONTRACTOR

PLUMBING LOAD SUMMARY		
LOAD	FIXTURE UNITS	FLOW
SANITARY WASTE	71 DFU	-
DOMESTIC WATER	155 SFU	80 GPM

2012 NORTH CAROLINA ENERGY CONSERVATION CODE COMMERCIAL ENERGY EFFICIENCY - PLUMBING SUMMARY	
501.1 METHOD OF COMPLIANCE	<input type="checkbox"/> 2012 NCECC CHAPTER 5 <input type="checkbox"/> ASHRAE 90.1-2010 PREScriptive <input type="checkbox"/> ASHRAE 90.1-2010 PERFORMANCE <input type="checkbox"/> COMCHECK PROVIDED (2012 NCECC) <input type="checkbox"/> COMCHECK PROVIDED (90.1-2010) <input type="checkbox"/> ENERGY MODELING DATA PROVIDED
501.2 APPLICATION COMPLIANCE	<input type="checkbox"/> 506.2.1 EFFICIENT MECH EQUIPMENT <input type="checkbox"/> 506.2.2 REDUCED LTG DENSITY <input type="checkbox"/> 506.2.3 ENERGY RECOVERY SYSTEMS <input type="checkbox"/> 506.2.4 HI EFFICIENCY DOMESTIC HW <input type="checkbox"/> 506.2.5 ONSITE RENEWABLE ENERGY <input type="checkbox"/> 506.2.6 DAYLIGHTING CONTROLS
504.2 SERVICE WATER-HEATING EQUIPMENT PERFORMANCE EFFICIENCY	SYSTEM DESCRIPTION - MHLL - GAS WATER HEATER, 60 GALLON TANK TYPE, 120 MBH STORAGE WATER HEATERS, GAS: SIZE CATEGORY (> 75 MBH ≤ 155 MBH): 120 MBH STORAGE TOTAL: 60 GALLONS SUBCATEGORY (< 4,000 BTU/H/GAL): 2,000 BTU/H/GAL MINIMUM THERMAL EFF. REQUIRED: 80 % THERMAL EFF. OF SPECIFIED HEATER(S): 95 % MAXIMUM STANDBY LOSS: [(120,000/800) + (110 x √60)] = 1002 BTU/H STANDBY LOSS OF REQUIRED HEATER(S): 800 BTU/H

PLUMBING DRAWING INDEX	
SHEET NUMBER	SHEET TITLE
P001	LEGEND AND NOTES - PLUMBING
P002	SCHEDULES AND DETAILS - PLUMBING
P003	DETAILS - PLUMBING
P101	FLOOR PLAN - WASTE & VENT
P102	ROOF PLAN - PLUMBING
P201	FLOOR PLAN - WATER SUPPLY
P301	FLOOR PLAN - GAS PIPING

adwarchitects
 environmentsforlife
 architecture planning interiors
 8 coliseum centre,
 2815 coliseum drive, suite 500
 charlotte, north carolina 28217
 t 704 379 19